

REMARKS

In the Office Action of December 27, 2005, the Examiner initially objected to the drawings under 37 CFR 1.83(a). In the Examiner's opinion, the drawings fail to illustrate the concept of varying the offset from the effective setpoint as a function of the selected comfort level scenario and the current characteristic of energy. The applicant hereby objects to such finding by the Examiner.

In Fig. 3C of the present application, the drawing illustrates various values for the allowed offset on the vertical axis. The horizontal axis of the drawing figure illustrates the current cost of energy, where the current cost of energy is classified as either low, medium, high or critical. The graph of Fig. 3C includes three different comfort level scenarios, shown by the different lines on the graph. These comfort level scenarios include maximum savings, balanced savings/comfort and maximum comfort. The graph clearly illustrates that when one of the three comfort level scenarios are selected, which are represented by the three different lines in Fig. 3C, the offset from the effective setpoint can be determined by the intersection between the comfort level scenario line and the current characteristic of energy, which may be the actual cost or one of the four classifications of the cost. The point of intersection between these two selections can then be utilized to determine the allowed offset, as clearly shown in the drawing figure. Figure 3C shows the ability to vary the offset from the effective setpoint as a function of the selected comfort level scenario and the current characteristic of energy. The Examiner is hereby requested to withdraw the objection to the drawings included in the outstanding Office Action.

In the Office Action, the Examiner has rejected claims 53-56, 60-65, 99, 100 and 102 under 35 USC §112, first paragraph, as failing to comply with the enablement requirement. The Examiner has specifically stated that the drawings do not illustrate the limitation of varying the offset from the effective setpoint as a function of the selected comfort level scenario and the current characteristic of energy. As described above, Fig. 3C of the application clearly illustrates that the offset is calculated based upon the

intersection between the comfort level scenario line and the current characteristic of energy.

The specification of the pending application clearly teaches that the effective setpoint is determined based upon a function of the temperature setpoint and the sensed humidity (paragraph 243). Claim 53 then requires the system to determine an offset from the effective setpoint based upon the comfort level scenario and the current characteristic of energy. This feature is also supported by the specification (paragraph 249, 255). The disclosure of the application, in combination with the drawing figures, provides sufficient disclosure to enable one of ordinary skill in the art to make and/or use the invention. The graphic illustration of the offset calculation in Fig. 3C clearly illustrates how the offset is calculated based upon the cost of energy and selected comfort level scenario. Once the offset is calculated, the specification clearly states that the offset is used with the effective setpoint to define a deadband within which the temperature is maintained. Therefore, the applicant hereby requests the Examiner to withdraw the rejection under 35 USC §112.

In Office Action, claims 11-14, 53, 54, 61-65, 86-97, 99-102 were rejected under 35 USC §102(b) as being anticipated by the Ehlers U.S. Patent No. 5,924,486. Claims 15, 16, 20, 55, 56, 60, 98 and 103 were rejected under 35 USC §103(a) as being unpatentable over the Ehlers '486 patent in further view of the Axelrod U.S. Patent No. 3,181,791.

Reconsideration of the above claim rejections is respectfully requested in view of the following arguments for allowance as well as the claim amendments presented in the previous portions of this response.

Claims 11-16, 20, 85-92 and 96-97

In the Office Action, independent claim 11 was rejected under §102(b) based upon the Ehlers '486 reference. In discussing the applicant's arguments for allowance included in the previous response of October 3, 2005, the Examiner indicated that the recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed

invention from the prior art. In the Examiner's opinion, if the prior art structure is capable of performing the intended use, then the prior art structure meets the limitations required by the claim. In paragraph 9 of the Office Action, the Examiner stated that the features upon which the applicant relied to distinguish claim 11 over the prior art were not recited in the rejected claim.

By the present amendment, independent claim 11 has been amended to more specifically identify the features of the invention that distinguish the claim from the cited prior art. Namely, the claim now requires the system to receive an input that includes a temperature setpoint and one of a plurality of comfort level scenarios, wherein each of the comfort level scenarios relate to a willingness to pay for energy at the expense of comfort. Further, the system includes an effective setpoint that is a function of the temperature setpoint and the sensed humidity and a deadband defined by the effective setpoint and an offset from the effective setpoint, where the offset is based on the selected comfort level scenario and the current level of energy cost. It is now believed that these features of the invention have been positively recited in claim 11 to overcome the objections raised by the Examiner in the Office Action.

Independent claim 11 of the pending application requires the system to include an effective setpoint that is a function of the user-selected temperature setpoint and the sensed humidity. In citing the Ehlers '486 patent, the Examiner has referred to Col. 32, lines 38-55, to state that the Ehlers '486 patent taught the use of a humidity sensor. In this portion of the '486 patent, indoor humidity data is combined with indoor temperature to vary the temperature setpoint based upon user comfort. The user is allowed to enter a comfort level value between 100% and 0%. If the user enters a value of 100%, which indicates maximum comfort, the system will center the range of temperatures around the user-defined temperature setpoint. If the comfort level of 0% is selected, the temperature setpoint will then be adjusted to the temperature at which, for the current humidity level, most people will feel uncomfortable, regardless of the user-defined temperature setpoint. If the user selects a 50% comfort level, then the temperature setpoint will be halfway

between the maximum temperature that causes most people to feel uncomfortable, as indicated above at 0%, and the user-defined or learned temperature setpoint. The Ehlers '486 patent thus teaches determining the effective temperature setpoint based upon the humidity level and the user-selected comfort level, which has a value between 0% and 100%. The effective temperature setpoint thus depends upon the comfort level percentage, the current humidity level, and the user-defined temperature setpoint. The Ehlers '486 patent does not teach or suggest adjusting the deadband, as defined by the effective setpoint and an offset from the effective setpoint, where the offset is based on the selected comfort level and the current level of energy costs. Instead, the Ehlers '486 patent teaches utilizing a comfort level percentage to modify the effective setpoint temperature.

Independent claim 11 requires the effective setpoint temperature to be determined as a function of the temperature setpoint and the sensed humidity level. Thus, the effective setpoint varies from the temperature setpoint based upon the humidity level sensed, regardless of the selected comfort level scenario. This feature is clearly not taught or suggested by the Ehlers '486 patent.

Independent claim 11 further requires the offset from the effective setpoint temperature to be based upon the selected comfort level scenario and the current energy level cost, as clearly shown in Fig. 3C. The Ehlers '486 reference does not teach determining an offset based upon the selected comfort level scenario and the current level of energy costs. Nowhere in the Ehlers '486 reference is there any teaching or discussion of determining an offset from the effective setpoint based upon the selected comfort level scenario and the current level of energy costs. Instead, the Ehlers '486 reference teaches the ability for the user to select a percentage value for comfort which is then utilized by the controller to adjust the temperature setpoint. The Ehlers '486 reference does not teach or suggest utilizing the comfort level scenario to modify the offset of the effective setpoint, where the effective setpoint is determined based upon the sensed humidity.

The use of the humidity level and temperature setpoint to determine the effective setpoint temperature allows the system to adjust the effective temperature setpoint such that the home occupant maintains the same general comfort level as the humidity within the enclosed area increases or decreases. As required by claim 11, the effective setpoint temperature is determined regardless of the comfort level scenario selected by the user. This is in distinct contrast to the teachings of the Ehlers '486 patent, which indicates that that the temperature setpoint is modified based upon the percentage of comfort level selected by the user. In addition, the invention of claim 11 adjusts the offset from the effective setpoint based upon the selected comfort level scenario. The adjustment to the offset that defines the deadband allows the system to sacrifice user comfort at the expense of cost savings. As described, the offset is determined from the effective setpoint temperature such that the system modifies the temperature setpoint based upon humidity and determines the allowable offset based upon a comfort level scenario and the cost of energy. This feature is clearly not taught by the Ehlers '486 reference.

Based upon these differences between the Ehlers '486 reference and the subject matter of claim 11, claim 11 is believed to be in condition for allowance.

Claims 12-16, 20, 85-92 and 96-97 depend directly or indirectly from claim 11 and are thus believed to be allowable based upon the above arguments for allowance as well as the subject matter of each claim.

Claims 53-56, 60-65, 99-100 and 102

In the Office Action, independent claim 53 was rejected under §102(b) based upon the Ehlers '486 patent. Independent claim 53 of the pending application requires the method to include the step of determining an effective setpoint as a function of the temperature setpoint and the sensed humidity. In citing the Ehlers '486 patent, the Examiner has referred to Col. 32, lines 38-55 to state that the Ehlers '486 patent taught the use of a humidity sensor. In this portion of the '486 patent, the disclosure describes an alternate embodiment in which the indoor humidity data is combined with the indoor temperature to vary the setpoint based upon user comfort. The user is allowed to enter a

comfort level value between 100% and 0%. If the user enters a value of 100%, which indicates the user would like maximum comfort, the system will utilize the user-defined temperature setpoint as the center of the range of temperatures where the limits of the range are defined by a temperature-humidity index. If the comfort level of 0% is selected by the user, the temperature setpoint will then be adjusted to the temperature at which, for the current humidity level, most people will feel uncomfortable regardless of the setpoint. If the user selects a 50% comfort level, then the temperature setpoint will be halfway between the maximum temperature that causes most people to feel uncomfortable, as indicated above as being the temperature at 0%, and the user-defined or learned temperature setpoint.

The Ehlers '486 patent thus teaches determining the effective temperature setpoint based upon the humidity level and the user-selected comfort level having a value of between 0% and 100%. The effective setpoint thus depends upon the comfort level percentage selected by the user, the current humidity level, and the user-defined temperature setpoint. The Ehlers '486 patent does not teach or suggest adjusting the range of offset temperatures from the effective setpoint based upon the comfort level scenario. Instead, the Ehlers '486 patent teaches utilizing a comfort level percentage selected by the user to modify the effective setpoint.

Independent claim 53 of the present application requires the effective setpoint temperature to be determined based upon a function of the temperature setpoint selected by the user and the sensed humidity level. Thus, the effective setpoint varies from the temperature setpoint based upon the humidity level sensed, regardless of the selected comfort level scenario. This feature is clearly not taught nor suggested by the Ehlers '486 reference.

Further, independent claim 53 includes the limitation of determining an offset from the effective setpoint based upon the selected comfort level scenario and the current characteristic of energy, as clearly shown in Fig. 3C. The Ehlers '486 reference does not teach determining an offset based upon the selected comfort level scenario and the current

characteristic of energy. At most, the Ehlers '486 reference teaches utilizing different offset values based upon the cost of energy per unit, as shown in Fig. 5. As described in the Ehlers '486 reference, different offset values are selected by the user for multiple price points for energy. Based upon the current cost of energy, the controller utilizes an offset to allow the temperature within the enclosed area to vary from the thermostat setpoint. Nowhere in the Ehlers '486 reference is there any teaching or discussion of determining an offset from the effective setpoint based upon the selected comfort level scenario and the current characteristic of energy. Instead, the Ehlers '486 reference, in Col. 32, lines 38-55, teaches the ability for the user to select a percentage value for comfort which is then utilized by the controller to adjust the temperature setpoint. The Ehlers '486 reference does not teach or suggest utilizing the comfort level scenario to modify the offset from the effective setpoint, where the effective setpoint is determined based upon the sensed humidity.

The method of claim 53 allows the user to select a comfort level scenario and does not require the user to enter multiple offsets based upon energy pricing. Instead, the user can simply select one of several comfort level scenarios and the method calculates an offset based upon the selected comfort level scenario and the current characteristic of energy. The method greatly reduces the number of data entry points required by the user when setting up a thermostat that operates in accordance with the method of claim 53.

As described above, the Ehlers '486 reference does not teach or suggest, nor render obvious, a method that determines an effective setpoint as a function of the temperature setpoint and the sensed humidity. Instead, the Ehlers '486 reference utilizes a percentage of comfort entered by the user, in combination with the sensed humidity, to calculate an effective temperature setpoint. The Ehlers '486 reference does not teach or suggest, nor render obvious, the method of utilizing a selected comfort level scenario and the current characteristic of energy to determine an offset from the calculated effective setpoint. Instead, the Ehlers '486 reference teaches that the user can enter a percentage of comfort desired, which is then utilized to adjust the effective temperature setpoint. The

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percentage of comfort desired is not utilized to determine an effective offset, as required by claim 53. Based upon these differences between the Ehlers '486 reference and the subject matter of claim 53, claim 53 is believed to be in condition for allowance.

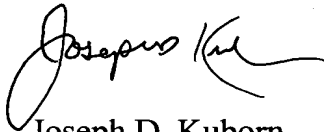
Claims 54-56, 60-65, 99-100 and 102 depend directly or indirectly from claim 53 and are thus believed to be allowable based upon the above arguments for allowance.

Conclusion

Based upon the above arguments for allowance, claims 11-16, 20, 53-56, 60-65, 85-92, 96-97, 99-100 and 102 are believed to be in condition for allowance. The Examiner is invited to contact the applicant's undersigned attorney with any questions or comments, or to otherwise facilitate prosecution of the present application.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Joseph D. Kuborn", with a stylized flourish at the end.

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